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10/692,115	10/23/2003	Cary Lee Bates	CA920020065US1	6581
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IBM CORPORATION (VE)			WEI, ZHENG	
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/692,115

Applicant(s)

BATES ET AL.

Examiner

Zheng Wei

Art Unit

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/23/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 05/03/2004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. This office action is in response to the application filed on 10/23/2003.
2. Claims 1-23 are pending and have been examined.

***Oath/Declaration***

3. The Office acknowledges receipt of a properly signed oath/declaration filed on October 23, 2003.

***Priority***

4. The priority date considered for this application is January 31, 2003, which is the filing date of the Foreign Application No. Canada 2,418,255. A certified copy of the priority application has been received and placed in the application file.

***Information Disclosure Statement***

5. The information disclosure statements filed 10/23/2003 and 05/03/2004 have been placed in the application file. Per Applicant's request, the IDS filed on 05/03/2004 will replace previous one filed on 10/23/2003. Therefore only the information referred to therein has been considered.

***Drawings***

6. The drawings filed on June 30, 2003 is objected by the Examiner because of the following minor informalities:

Figure 6, step 620 does not show the condition to go to step 690 and 640 does not show how to go back to step 620.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended.

The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

7. The specification is objected to because of the following minor informalities:
- Specification does not disclose the execution path from step 620 to 690 in figure 6;
  - Specification does not disclose the execution path from step 640 to 620 in figure 6;
  - Page 11, line 10: "If a<sup>10</sup>" is a typo.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- The term "similar" in claims 1-17 and 20-23 is a relative term which renders the claim indefinite. The term "similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution, the Examiner treats the term "similar" as --not same--.

- The term "reasonable size" in claims 3-7 and 10-15 is a relative term which renders the claim indefinite. The term "reasonable size" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution, the Examiner treats the term "reasonable size" as —any size—
- The terms "N tokens" in claims 11-15, 16-17 and 20-23; "M tokens" in claims 20-23; "P tokens" in claims 16-17 and "the first N tokens" in claims 11-15 are relative terms which render the claims indefinite. The terms "N tokens", "the first N tokens", "M tokens" and "P tokens" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution, the Examiner treats all terms above as — any number of tokens—
- The terms "too small" and "too large" in claims 11-15 are relative terms which render the claim indefinite. The terms "too small" and "too large" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution, the Examiner treats the terms "too small" and "too larger" as —any size of construct—

- The terms "owner" in claims 1-11, 14-15, 18-19 and 22 is relative term which renders the claim indefinite. The terms "owner" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution, the Examiner treats the terms "owner" as —a person who owns the right to check in/out files to/from repository—
- Claim 1 recites the limitations "the owners" in p.19, bullet (5) of claim 1. There is insufficient antecedent basis for this limitation in the claim
- Claims 2 and 10 recite the limitations "the token" in p.19, second line of claim 2 and p.20, third line of claim 10. There are insufficient antecedent basis for this limitation in the claim.
- Claim 2 recites the limitation "the step" in p.19, first line. There is insufficient antecedent basis for this limitation in the claim.
- Claim 22 recites the limitations "the owners" in p.24, line 2 of claim 22. There is insufficient antecedent basis for this limitation in the claim

***Claim Rejections - 35 USC § 101***

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 16-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 16 and 18:

Claims 16 and 18 claim an integrated development environment (IDE), which is a software development tool, only consists of computer software program and can be interpreted as computer program listings per se. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. Thus, they are not statutory.

*See M.P.E.P. 2106.01 (I)*

Claims 17 and 19:

Claims 17 and 19, depend from claims 16 and 18, do not remedy the deficiencies as noted above respectively, thus are also rejected under 35 U.S.C. 101 for the same reasons.

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Fogel (Fogel et al., Open Source Development with CVS, 3<sup>rd</sup> Edition).

Claim 1:

Fogel discloses an algorithm to improve efficiency of editing source code, comprising

(1) recognizing that source code has been edited (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.21, "cvs update" and related text);

(2) identifying a program construct having the edited source (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.22-23, "cvs -Q diff -c" and related text);

(3) constructing a construct list of at least one other construct having similar and/or related code (see for example, p.99, section "The checkoutlist File" and related description);

(4) determining the similarity between the at least one other construct and the program construct having the edited source code (see for example p.21, section

"Finding Out What You (And Others) Did – update And diff", also see example, p.22-23, "cvs -Q diff -c" and related text);

(5) if equal to or beyond a threshold of similarity, then notifying the owners of the at least one other construct determined to be similar (see for example, p.103, first paragraph, "By setting a watch on a file, a developer can have CVS notify her if anyone else starts to work on that file. The notifications are normally sent via email, although it is possible to setup other notification methods").

Claim 2:

Fogel further discloses the efficiency algorithm of claim 1, wherein the step of identifying the program construct further comprises parsing the tokens of the edited source code (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.22-23, "cvs -Q diff -c" and related text).

Claim 3:

Fogel further discloses the efficiency algorithm of claim 1, wherein the step of constructing a construct list further comprises determining that the at least one other construct is of a reasonable size for placement in the construct list (see for example, p.18, section "Checking Out A Working Copy"; p.99, section "The checkoutlist File" and related description).

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Claim 4:

Fogel also discloses the efficiency algorithm of claim 3, further comprising the step of: parsing a sequence of tokens from each of a plurality of constructs of a reasonable size (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.22-23, "cvs -Q diff -c" and related text).

Claim 5:

Fogel further discloses the efficiency algorithm of claim 4, wherein the step of determining the similarity further comprises comparing the parsed tokens of the edited source code with the parsed tokens of each of a plurality of constructs in the construct list (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.22-23, "cvs -Q diff -c" and related text).

Claim 6:

Fogel further discloses the efficiency algorithm of claim 5, wherein the step of comparing the parsed tokens further comprises weighting the compared tokens so that a degree of similarity can be established (see for example, p.27, "see all the changes at once" and example of "floss\$ cvs -Q diff -c" shows difference of all files in working directory comparing with files in repository).

Claim 7:

Fogel also discloses the efficiency algorithm of claim 6, further comprising the step of summing the weights of the compared tokens to determine if the sum is equal to or beyond the threshold of similarity (see for example, p.27, "see all the changes at once" and example of "floss\$ cvs -Q diff -c" shows difference of all files in working directory comparing with files in repository).

Claim 8:

Fogel further discloses the efficiency algorithm of claim 1, further comprising storing the construct list (see for example, p.99, section "The checkoutlist File": "If you look inside CVSROOT/, you'll see that working copies of the files exist side by side with their RCS revision files" and example).

Claim 10:

Fogel discloses an efficiency algorithm to improve efficiency of editing source code, comprising:

- (1) recognizing that source code has been edited (see for example p.21, section "Finding Out What You (And Others) Did – update And diff", also see example, p.21, "cvs update" and related text);
- (2) identifying a program construct having the edited source code and parsing the tokens of the edited source code (see for example p.21, section "Finding Out

What You (And Others) Did – update And diff”, also see example, p.22-23, “cvs – Q diff –c” and related text);

(3) constructing a construct list of at least one other construct of reasonable size having similar and/or related code by parsing a sequence of tokens from each of a plurality of constructs of a reasonable size (see for example, p.99, section “The checkoutlist File” and related description);

(4) determining the similarity between the at least one other construct and the program construct having the edited source code by comparing the parsed tokens of the edited source code with the parsed tokens of each of a plurality of constructs in the construct list, and weighting the compared tokens (see for example, p.27, “see all the changes at once” and example of “floss\$ cvs –Q diff – c” shows difference of all files in working directory comparing with files in repository);

(5) summing the weights of the compared tokens to determine if the sum is equal to or beyond the threshold of similarity, and if so, then determining if an owner of the at least one other construct determined to be similar is to be notified (see for example, p.107, example of watch on cvs checkin process: “Triggered commit watch”); and

(6) storing the construct list (see for example, p.99, section “The checkoutlist File”: “If you look inside CVSROOT/, you’ll see that working copies of the files exist side by side with their RCS revision files” and example).

14. Claims 11-15 and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Bloom (Delwin W. Bloom, US 3,711,863")

Claim 11:

Bloom discloses a method of tracing determining if two or more constructs in a repository of source code in an integrated development environment are related and/or derived, said method comprising the steps of:

- (1) identifying a first construct (see for example, Fig.1, step "Locate Base Module" and related text);
- (2) parsing the first N tokens of the first construct (see for example, Fig.1, step "Load Source Code From Base Module Into First Working Buffer" and related text; also see Fig.2B step 38 "Compare seven words" and related text);
- (3) identifying a plurality of other constructs in the repository (see for example, Fig.1, "Locate Module to be compared" and related text);
- (4) disregarding those of the plurality of constructs in the repository that are too small (see for example, Fig.1, step "Compare Source codes from Both Working Buffers Until Difference Between Codes is Found" and related text);
- (5) identifying those of the plurality of constructs in the repository that are too large (see for example, Fig.1, step "Compare Source codes from Both Working Buffers Until Difference Between Codes is Found" and related text);

- (6) finding subconstructs in the plurality of constructs that are too large (see for example, Fig.1, step "Compare Source codes from Both Working Buffers Until Difference Between Codes is Found" and related text);
- (7) identifying those constructs in the repository and those subconstructs that are of a reasonable size (see for example, Fig.1, step "Compare Source codes from Both Working Buffers Until Difference Between Codes is Found" and related text);
- (8) comparing N tokens of the reasonably sized constructs with N tokens of the first construct (see for example, Fig.1, step "Test For Next Equal Comparison Of Two Consecutive Lines of Source Codes" and related text; also see Fig.2B step 38 "Compare seven words" and related text);
- (9) determining a weight for each token based on name, type, and/or representation (see for example, Fig.1, step "Find Identical Symbolic Addresses" and related text);
- (10) summing the weights of each of the N compared tokens (see for example, Fig.1, step "Work Backwards From Identical Symbolic Addresses – Test For Non-Comparison" and related text);
- (11) determining that the sum of the weights of the compared token meets or exceeds a threshold of similarity (see for example, Fig.1, step "Compare Results of Tests" and related text; also see Fig.2c, step 62 "Calculate Total Lines of Change" and related text); and

(12) determining that the reasonably sized construct having the sum of the weights that meets or exceeds the threshold of similarity is related to the first construct (see for example, Fig.1, step "Select Test Producing Smallest Area of Change" and related text).

Claim 12:

Bloom further discloses the method of claim 11, wherein the step of identifying the first construct further comprises identifying that source code within the first construct has been edited (see for example, Fig.1, step "Determine If Change is Deletion, Addition or Modification Line-By-Line" and related text).

Claim 13:

Bloom further discloses the method of claim 11, further comprising storing a pointer to the reasonably sized construct having the sum of the weights that meets or exceeds the threshold of similarity in a construct list of related construct (see for example, Fig.2C, step 66 "Set Pointer Based on Comparison Having Least Change", step "Set up Pointers" and related text).

Claim 14:

Bloom also discloses the method of claim 13, further comprising allocating ownership of a plurality of owners, each of the plurality of owners associated with each of the constructs in the construct list (see for example, Fig.2A step 12,

"Read In Options Selected"; step 18 "setup Compare Parameters", step 20 "Initialize Search Flags" and related text).

Claim 15:

Bloom further discloses the method of claim 14, further comprising: offering notification to the plurality of owners that one of the constructs in the construct list has been changed (see for example, Fig.1, steps "Determine If Change is Deletion, Addition or Modification Line-By-Line", "Print Change" and related text)

Claims 20-23:

Claims 20-23 are an article version to perform and realized the claimed methods as discussed in claims 11-15 above, wherein all claimed limitations have been address and/or set forth in claims 11-15. Therefore, as the references teach all the limitation of claims 11-15, they also teach he limitations of claims 20-23. Thus they also would have been anticipated. (see for example, col.16, lines 11- col.20, line 22)

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 9 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fogel (Fogel et al., Open Source Development with CVS, 3<sup>rd</sup> Edition) in view of CvsIn (CvsIn menu page)

Claim 9:

Fogel discloses the efficiency algorithm of claim 1, wherein the efficiency algorithm is a machine-implemented process (see for example, p.69, section "Getting And Installing CVS Under Windows" and related description; also see p.70, last paragraph, "WinCvs"), but does not explicitly disclose the WinCvs in an integrated development environment. However, CvsIn in the same analogous art of source code version control disclose integration of CVS and IDE (see for example, p.2, CvsIn- DevStudio Add-in for CVS and environment is Visual C++). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate CVS in the IDE by using CvsIn. One would have been motivated to do so to "have the working and operational tool Fast" as suggested by CvsIn (see for example, p.3, second paragraph)

Claims 16-17 and 18-19:

Claims 16-17 and 18-19 are two integrated development environment system versions of the claimed method/algorithm as discussed in claims 1-9 above, wherein all claimed limitations have been address and/or set forth in claims 1-9.

Therefore, as the references teach all the limitation of claims 1-9, they also teach the limitations of claims 16-19. Thus they also would have been obvious by Fogel and Cvsln.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - Ray Hsu (US 5,974,254) discloses a method for detecting differences between graphical programs.
  - Brenda S. Baker, "On Finding Duplication and Near-Duplication in large Software System"
  - Udi Manber disclose: Finding Similar Files in a large File System
  - Berghel et al, discloses measurements of program similarity in identical Task Environments.
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zheng Wei whose telephone number is (571) 270-1059 and Fax number is (571) 270-02059. The examiner can normally be reached on Monday-Thursday 8:00-15:00.

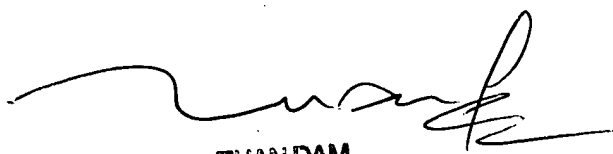
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571- 272-1000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZW



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